avoiding planned or/and unplanned deforestation and protection from native grassland conversion as initiated by a variety of agents and drivers.

While all three projects selected different methods (VM0006, VM0015, VM0009) for emission calculation, the main similarity amongst them is to set the baseline emission for the project, and to calculate the net emission or emission reductions. VCS groups REDD+ projects into 3 categories according to its size such as micro projects (under 5 000 tCO2-eq per year), medium projects (5 000 to 1 000 000 tCO2-eq per year) and mega projects (greater than 1 000 000 tCO2-eq per year). Therefore, Oddar Meachey project and Tumring project fall into the category of medium project, while the KSWS project is considered a mega project. For Oddar Meanchey project, the carbon credits are from reducing emission from deforestation and forest degradation. For KSWS project, carbon credits are generated from the net emission deduction from deforestation and forest degradation (the first 3 years) and from the removals (the other 7 years). The emission projection for the KSWS project is only for the first 10 years. The projection beyond this period will be made after revising the baseline. And for the Tumring project, the carbon credits are from removals. In addition, the Monitoring Reporting and Verification (MRV) for each project is similar. Field based sampling of forest carbon stocks and monitoring land use change via analysis of classified Landsat image were utilized to achieve accuracy in estimating carbon emission. All three projects are also required by the VCS and CCB to be validated, periodic monitored, and verified by a third-party. All three have been validated as of 2021.

For methodology, all three REDD+ projects excluded planned (authorized) deforestation from their baseline. As for carbon pools selected in the project, although there are six different pools to be measured including above ground biomass, belowground biomass, dead wood, litter, soil organic carbon, and harvested wood, all the projects included only maximum three pools, namely aboveground biomass, belowground biomass, and deadwood. As in Tumring project, only two carbon pools were included; aboveground biomass and belowground biomass (noticed that the first draft of Tumring included standing deadwood, but this pool was considered insignificant in validated document). The REDD+ project implementation timeframe of Oddar Meanchey and Tumring is 30 years, and 60 years for KSWS project; therefore, including more carbon pools would yield more emission deduction over the timeframe.

Community and biodiversity benefits

Both the Oddar Meanchey project and the KSWS project met the quality standard defined by CCBA and was qualified for Gold level based on its optional Climate Change Adaptation, Community, and Biodiversity Criteria. One of the main benefits for local people in the project area is reinforcement of land tenure. While costly to implement, the reinforcement of land tenure can help communities especially the poor household in securing and protecting land tenure and assist them to obtain a legal and enforceable right to their forest resources, as well as motivate them to implement sustainable land-use. The projects also support the process of resolving

conflicts related to demarcated boundaries. Additionally, development of sustainable land-use plans is the other main benefits for community because this result in land tenure formalization and recognition. In terms of biodiversity benefits, all three projects have contributed to the reduction in illegal land conversion, logging and unsustainable harvest of timber and non-timber forest products, as well as poaching of wildlife by active hunters through their support to patrolling activities. Protection of the wildlife inside the project areas also contributes to Cambodia's commitments under the Convention on Biological Diversity (CBD).

Project financing and benefit sharing

The main challenge for all the REDD+ projects development is the investment cost in developing the Project Design Document (PDD), Validation and Verification. Due to this challenge, several REDD+ projects in Cambodia could only complete their feasibility study and failed to proceed. For example, based on annual report of Forestry Administration on Korea-Cambodia REDD+ joint project in Tumring, it is estimated that 45% of the total investment funding from Korea Forest Service is gone to third party to develop PDD, validation, and verification. And getting carbon credit registration on the international voluntary market will cost additional fees according to market standard.

While a significant amount of financial support for the three projects come from development partners at its initial stage, some activities of the projects such as training, capacity development, workshop and technical assistance have been supported from the sales of VCUs. According to Government Decision No. 699 ("Sor Chhor Nor"), revenues from the three projects shall be used to improve the quality of the forest, to maximize the benefits to the local communities who are participating in the project, and to study potential sites for additional REDD+ projects. For example, the benefits 50% from selling carbon credits from the KSWS project has been distributed support implementation of community development projects.

Lessons learned

The first lesson is that developing and implementing a successful REDD+ project is costly. Thus, before starting a REDD+ project, project proponents should critically consider the finance supports that they have, or they can mobilize from different sources and how far these supports would help them. Alternatively, project proponents who have the same objectives should focus on one or two REDD+ projects together rather than work on different projects at the same times and cannot complete the whole procedure from project development to sales of the VCUs. Experience from the projects also showed that costs can be reduced through engagement of local communities in activities such as forest patrolling. This activity also increased the motivation of local communities in protecting their forest resources to ensure that the forest continue to provide them with non-timber forest products for their daily subsistence uses. Nonetheless, despite its high investment costs, REDD+ projects have the potential to provide non-monetary benefits such as land tenure registration, social capital enhancement, and increased non-timber forest resources for local uses.

POLICY BRIEF

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Reviews and Lessons Learned from REDD+ Projects in Cambodia

Forestry Administration (FA)
#40 Preah Norodom Blvd.
Phnom Penh, Cambodia
Tel: (+855) 23 214 651
Fax: (+855) 23 212 201
Website: http://www.forestry.gov.kh/

International Tropical Timber Organization (ITTO)
International Organization Centre, 5th Floor
Pacifico – Yokohama, 1-1-1, Ninato,-Mirai, Nishi-Ku
Yokuhama, 220-1012, Japan
Tel: (81-45) 223-1110
Fax: (81-45) 223 1111
Web Page: http://www.itto.int

Highlights

- Three REDD+ projects were reviewed in terms of their methodologies, drivers of deforestation and forest degradation, community and biodiversity benefits, project financing and benefit sharing.
- Developing and implementing a successful REDD+ project is costly and time consuming. Thus, the followings recommendations are suggested:
  - Project proponents must critically consider the financial supports that they have, or they can mobilize from different sources and how far these supports would help them.
  - Project proponents with the same objectives should focus on developing one REDD+ project within a landscape rather than working on different projects simultaneously and cannot complete the whole procedure from project development to sales of the VCUs.
  - Costs can be reduced through engagement of local communities in activities such as forest patrolling. This activity also increases their motivation in protecting the forest resources.
  - Despite its high investment costs, REDD+ projects have the potential to provide non-monetary benefits such as land tenure registration, social capital enhancement, and increased non-timber forest resources for local uses.

Introduction

This policy brief reviews ongoing REDD+ projects in Cambodia to identify applicable lessons for future project development and implementation. The three projects selected for this review are considered most advance in the country because their results have been verified and validated by independent third party. These projects include: (i) Oddar Meanchey REDD+ project, (ii) Keo Seima Wildlife Sanctuary REDD+ Project, and (iii) Tumring REDD+ project. These projects are registered in the registry system of the Verified Carbon Standards (VCS) and Climate Community Biodiversity (CCB) Alliance. This review focused mainly on these key areas: methodology used in each project, drivers of deforestation and forest degradation, community and biodiversity benefits, project financing and benefit sharing.

Oddar Meanchey Community Forestry REDD+ Project

This project is located in Oddar Meanchey Province. The area consists of 13 community forests, with a total area of 63,831 hectares (ha). This project is expected

Prey Kbal O Kranhak Community Forest in Sandan District, Kampong Thom Province,Cambodia. Photo: Sreng Syneath, FA/ITTO

to generate an estimated 6,143,767 VCUs or Verified Carbon Units over 30 years (Terra Global Capital, 2012). Due to the intense pressure of commercial and illegal logging, encroachment, forest fires and economic land concession, and several other factors such as rapid economic growth, population growth, migration, speculation of land, deforestation has occurred rapidly throughout the province which was estimated at 2% annually from 2002 to 2006 (Terra Global Capital, 2012). In response, Community Forestry (CF) area has been established by local community to protect the remaining forest lands. Therefore, this project aims at generating the opportunity for long term conservation of forest with the support CF members.

Keo Seima Wildlife Sanctuary REDD+ Project

This project is located in Mondulkiri province with a small area extending into Kratie province. The Keo Seima Wildlife Sanctuary (KSWS) covers the area of 292,690 ha. The project is expected to reduce emission of 14 million tCO2e from unplanned deforestation over a 10-year timeframe. Drivers of deforestation are forest clearance for agriculture and unsustainable resource extraction such as hunting, logging and fishing, which harm both biodiversity and local forest-dependent livelihoods. Other drivers include improvement of road access, population growth, limitation of law enforcement and governance framework, limited recognition of the biodiversity and environmental value. In response to this situation, the REDD+ project aims develop a management system to conserve and restore the biodiversity and enhance livelihood of local people.

Tumring REDD+ Project

This project is located in Kampong Thom province, which lies on the southwestern edge of Prey Lang Wildlife Sanctuary (PLWS) and covering approximately 66,645 ha of land. This project is designed to promote climate change mitigation and adaptation, maintain biodiversity and generate alternative livelihoods under REDD+. It is expected to reduce 2.8 million tCO2e of emission over a 10-year timeframe. Uncontrolled small-scale conversion of forest land to agricultural land

Capacity Building Program to Khbal Khla Community Forestry Management Committee on Spatial Monitoring and Reporting Tool (SMART). Photo: Chhorn Vireak, FA/ITTO

and commercial, illegal logging are the main drivers of deforestation in this area. Therefore, this project aims to protect the remaining forestland to mitigate the impacts of global climate change, conserve biodiversity and ensure that ecosystem service provision for local community.

Methodology used for estimating emissions

All three projects employed the methodology developed by Verified Carbon Standards (VCS) and Climate Community Biodiversity (CCB) Alliance. The Oddar Meanchey project followed the VCS methodology VM0006 for carbon accounting for mosaic and landscape-scale REDD+ projects. This methodology offers procedures for measuring emission reduction and/or removals from activities aimed at reducing unplanned deforestation and forest degradation of the mosaic configuration. The methodology used in the KSWS project was the VCS VM0015 which is the methodology for Avoided Unplanned Deforestation. The Tumring project used the VCS VM0009 Methodology for Avoided Ecosystem Conversion. This methodology estimates greenhouse gas emission reductions generated from